

Dresden 3

3Q/2015 Plant Inspection Findings

Initiating Events

Mitigating Systems

Significance: G Sep 30, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Evaluate the Available Net Positive Suction Head for the Diesel Generator Cooling Water Pumps Following a Dam Failure

The inspectors identified a finding of very low safety significance, and an associated NCV of Title 10, Code of Federal Regulations (CFR), Part 50, Appendix B, Criterion III, "Design Control," for the failure to verify the adequacy of the diesel generator cooling water (DGCW) pumps' design. Specifically, the licensee failed to evaluate the net positive suction head (NPSH) available to the DGCW pumps at the most limiting ultimate heat sink (UHS) level after a postulated dam failure where they are expected to perform a safety function. The licensee entered this finding into their Corrective Action Program (CAP) and, after a review of their DGCW pump NPSH calculation and an evaluation, concluded that the DGCW pumps had adequate NPSH available to them at the most limiting UHS level after a postulated dam failure, and therefore remained operable.

The performance deficiency was determined to be more than minor because it was associated with the Mitigating Systems cornerstone attribute of equipment performance, and adversely affected the associated cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The finding screened as very low safety significance (Green) because although it affected the design or qualification of the DGCW pumps, it did not result in the loss of operability or functionality of the pumps. The inspectors did not identify a cross-cutting aspect associated with this finding because it was not confirmed to reflect current performance due to the age of the performance deficiency.

Inspection Report# : [2015003](#) (*pdf*)

Significance: G Sep 30, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Perform Ultimate Heat Sink Surveys in Accordance With Quality Assurance Program

The inspectors identified a finding of very low safety significance, and an associated NCV of 10 CFR Part 50, Appendix B, Criterion XI, "Test Control," for the failure to perform surveys of the UHS in accordance with the Quality Assurance Program. Specifically, the licensee failed to ensure that: (1) the requirements and acceptance limits in the Updated Final Safety Analysis Report (UFSAR) and other applicable design documents for the high points of the intake and discharge canals were incorporated into the UHS test; (2) the evaluation of the bathymetric survey results accounted for the instrument uncertainty of the test equipment; and (3) the UHS

bathymetric survey results were evaluated in accordance with the Quality Assurance Program to assure that the UFSAR required UHS volume was satisfied. The licensee entered this finding into their CAP and, after a review of

past bathymetric surveys and other information, determined that: (1) the discharge canal high point had not degraded and was not expected to significantly degrade; and (2) the UHS remained operable because the available UHS water volume still remained above the UFSAR required volume.

The performance deficiency was determined to be more than minor because it was associated with the Mitigating Systems cornerstone attribute of procedure quality, and adversely affected the associated cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The finding screened as very low safety significance (Green) because although it affected the design or qualification of the UHS, it did not result in the loss of operability or functionality of the UHS. The inspectors determined this finding had an associated cross-cutting aspect in the area of Human Performance, Design Margins, because the licensee did not pay special attention to maintaining the safety-related UHS. Specifically, special attention was not placed on guarding the design margin of the UHS, and a test program that did not meet all the quality assurance requirements was accepted to demonstrate the adequacy of the UHS.

Inspection Report# : [2015003](#) (*pdf*)

Significance:  Sep 30, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Post Protected Pathway Signs

The inspectors identified a finding of very low safety significance, and an associated NCV of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for the licensee's failure to implement all necessary prescribed risk management actions as required by licensee procedure OP-AA-108-117, "Protected Equipment Program," during a Unit 3 low pressure coolant injection (LPCI) logic system functional test (LSFT) maintenance window. Specifically, the licensee failed to post protected equipment signs for the Unit 3 2203-28 instrument rack whose unavailability impacts the high pressure coolant injection (HPCI) system and would have taken the unit into a licensee-defined Orange risk condition and Technical Specification (TS) Limiting Condition for Operations (LCO) 3.0.3.

The performance deficiency was determined to be more than minor because the licensee failed to implement prescribed risk management actions which if left uncorrected could have become a more significant safety concern. Specifically, operators inadvertently removed the protected equipment postings on instrument rack 2203-28 which could have significantly degraded the key safety function of reactor coolant inventory control if both the HPCI and LPCI systems became unavailable simultaneously and were required to mitigate the consequences of an accident that could result in potential offsite exposure comparable to the 10 CFR Part 100 guidelines. The finding screened as very low safety significance (Green) because the inspectors answered "No" to all of the Mitigating Systems Screening Questions. The inspectors determined this finding had a cross-cutting aspect in the area of Human Performance, Work Management, because the licensee failed to implement risk management actions in accordance with procedure OP-AA-108-117. Specifically, the licensee inappropriately removed protected equipment postings prior to commencing maintenance activities which required the risk management activity to be in place.

Inspection Report# : [2015003](#) (*pdf*)

Significance:  Jun 30, 2015

Identified By: Self-Revealing

Item Type: FIN Finding

Failure to Meet Technical Specification Surveillance Requirements Due to Foreign Material Left in the Unit 2 EDG Starting Circuit (1R13)

A finding of very-low safety significance (Green) was self-revealed on April 21, 2015 while performing TS Surveillance DOS 6600-12, "Diesel Generator Tests: Endurance and Margin/Full Load Rejection/ECCS [Emergency Core Cooling System]/Hot Restart," in support of Surveillance Requirement

3.8.1.16 which requires the EDG to achieve rated frequency and voltage conditions within 13 seconds when started less than or equal to five minutes from a previously loaded run, the Unit 2 Emergency Diesel Generator (EDG) failed to complete a hot restart. Licensee troubleshooting identified a degraded pressure switch associated with main bearing lube oil pressure in the start circuit which was taking several minutes to return to a low-pressure condition upon shutting down the EDG. This resulted in a failure of the start circuit relay to be energized upon initiating a start of the EDG, until the pressure switch returned to its appropriate low-pressure state. An internal investigation of the pressure switch identified strips of Teflon tape in the bellows of the pressure switch, which resulted in the pressure switch's sluggish response to lowering lube oil pressure, and a failure to meet the TS hot restart criteria.

The inspectors determined that the failure to implement Procedure MA-AA-716-008, "Foreign Material Exclusion Program," and therefore the inability to perform TS Surveillance Requirement 3.8.1.16 was a performance deficiency, and was considered more than minor because it was associated with the equipment performance attribute of the Mitigating Systems cornerstone, and impacted the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The inspectors utilized Attachment 0609.04, "Initial Characterization of Findings," and determined that this issue was of very-low safety significance because each question provided in Inspection Manual Chapter (IMC) 0609, Appendix A, Exhibit 2, "Mitigating Systems Screening Questions," was answered "No." The inspectors concluded that this finding was cross-cutting in the Human Performance, Documentation area, because licensee procedure MA-AA-716-008, "Foreign Material Exclusion Program," work instructions associated with Work Order 01410972-01, and previous calibrations of pressure switch 2-6641-526 did not include specific instructions and warnings regarding the proper use of Teflon tape with regards to preventing it from becoming foreign material. Other Dresden maintenance procedures, specifically MA-DR-0300-001, "Preventive Maintenance of Hydraulic Control Unit," and DEP 0300-16, "Rebuilding the Unit 2 (3) ASCO Scram Solenoid Pilot Valves," have specific warnings regarding the proper use and potential for Teflon tape to become foreign material. [H.7]
Inspection Report# : [2015002](#) (*pdf*)

Significance: G May 29, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

Procedure Revisions Resulted in Isolation Condenser Unable to Meet Design Basis

The inspectors identified a finding of very-low safety significance, and an associated Non-Cited Violation (NCV) of Title 10, Code of Federal Regulations (CFR), Part 50, Appendix B, Criterion III, "Design Control," for the licensee's failure to ensure that applicable regulatory requirements and the isolation condenser's (IC's) design bases were correctly translated into procedures. Specifically, the licensee added steps to the IC control procedures which directed operators to secure the IC in order to prevent the water level in the shell from going below 3.5 feet. The added steps would result in the IC being shutdown when required to operate per the IC's design bases. The licensee entered the issue into their Corrective Action Program (CAP) as Action Request 02506445, "NRC MOD/5059 Inspection: ISCO [Isolation Condenser] Operating Procedures," dated May 28, 2015.

The performance deficiency was determined to be more than minor because the finding was associated with the Mitigating Systems cornerstone attribute of Procedure Quality, and affected the cornerstone's objective of ensuring the capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). Specifically, the inadequate procedures would drive the operators to stop the IC during a design bases event and prevent the IC from performing its design function of removing decay heat from the reactor. The finding has a cross-cutting aspect in the area of Human Performance; Teamwork, because the licensee did not communicate and coordinate activities within and across organizational boundaries to ensure nuclear safety is maintained. Specifically, the Operations Department failed to communicate and coordinate with the Engineering Department when developing the procedural changes. [H.4]

Inspection Report# : [2015007](#) (pdf)

Significance: G May 29, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

EDG Usable Fuel Calculations Failed to Consider Appropriate EDG Frequency Variations

The inspectors identified a finding of very-low safety significance, and an associated NCV of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," for the failure to account for increased fuel oil consumption during the development of the Emergency Diesel Generator (EDG) Calculation 10553 CALC 07, "Dresden Station Emergency Diesel Generators Endurance Calculations," Revision 2, which resulted in non-conservative Technical Specifications (TS). Specifically, the licensee failed to account for the increased fuel oil consumption at an EDG frequency of 61.2 Hertz (Hz), and ensure that the minimum fuel oil level in the EDG day tanks, as required per TS 3.8.1.4, was adequate to support the EDGs' mission time at 110 percent for one hour. The licensee entered the issue into their CAP as Action Request 02506869, "NRC MOD/5059 Inspection: Emergency Diesel Generator Fuel Consumption," dated May 28, 2015.

The performance deficiency was determined to be more than minor because the finding was associated with the Mitigating Systems cornerstone attribute of design control and affected the cornerstone's objective of ensuring the capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). Specifically, the licensee failed to account for the increased fuel oil consumption resulting from operation at a higher EDG frequency. Therefore, the licensee did not ensure that the minimum fuel oil level in the day tanks, as required per TS 3.8.1.4, was adequate to support the EDGs' mission time at 110 percent for one hour. This finding has a cross cutting aspect in the area of Problem Identification and Resolution; Identification, because the licensee did not thoroughly evaluate the EDG fuel oil consumption when considering EDG frequency variation. Specifically, the licensee failed to translate applicable design bases into specifications which resulted in non-conservative TS. [P.1]

Inspection Report# : [2015007](#) (pdf)

Significance: G Dec 31, 2014

Identified By: NRC

Item Type: NCV Non-Cited Violation

Unit 3A Low Pressure Coolant Injection (LPCI) Heat Exchanger Supports Returned to Service with Unacceptable Indications

A finding of very low safety significance and associated non-cited violation (NCV) of 10 CFR 50.55a(g)(4) was identified by the inspectors for the licensee's failure to maintain American Society of Mechanical Engineers (ASME) Code Class 2 components in accordance with ASME Code Section XI requirements. Specifically, the licensee failed to repair or replace the Unit 3A Low Pressure Coolant Injection (LPCI) heat exchanger support welds identified to have unacceptable linear flaws prior to return to service.

The inspectors determined that the licensee's acceptance of linear flaws in the Unit 3A LPCI heat exchanger supports that are determined to be unacceptable for continued service IAW with the ASME Code Section XI, Article IWC-3000 requirements was a performance deficiency (PD). The inspectors determined that the PD was more-than-minor, and a finding, because if the PD remained uncorrected it could lead to a more significant safety concern. Absent NRC identification, the LPCI support welds with unacceptable linear flaws would have remained in service without repair or replacement. This condition could potentially lead to the failure of the Unit 3A LPCI heat exchanger supports, which in turn, could lead to a potential failure of the Unit 3A LPCI heat exchanger. The inspectors reviewed the finding using Attachment 0609.04, "Initial Characterization of Findings," Table 3-Significance Determination Process (SDP) Appendix Router. The inspectors answered 'No' to the question in Section A of Table 3; and therefore, evaluated the finding using the SDP in accordance with IMC 0609, "The Significance Determination Process for At-Power Operations," Appendix A, Exhibit 2, "Mitigating Systems Screening Questions." The inspectors answered "No" to the questions in Exhibit 2 and determined that this finding did not result in a deficiency affecting the

structures, systems, and components (LPCI heat exchanger) to maintain its operability or functionality. Therefore, the finding was determined to have very low safety significance. The inspectors determined that this finding has a cross-cutting aspect in the area of Human Performance, training, for the licensee's failure to provide training and ensure knowledge transfer to maintain a knowledgeable, technically competent workforce and instill nuclear safety values. Specifically, the licensee staff dispositioned unacceptable flaws in the LPCI heat exchanger supports for continued service using an engineering evaluation because the licensee staff lacked the specific ASME Code knowledge concerning disposition of the unacceptable indications. Therefore, the licensee failed to return the LPCI heat exchanger supports to within ASME Code acceptable flaw limits via repair or replacement prior to return to service. [H.9]

Inspection Report# : [2014005](#) (pdf)

Significance: **W** Dec 31, 2014

Identified By: NRC

Item Type: VIO Violation

Failure to Ensure Continued Operability of Unit 3 Electromatic Relief Valve 3-0203-3E Following Implementation of Extended Power Uprate Plant Conditions

An apparent violation (AV) of 10 CFR Part 50, Appendix B, Criterion III, Design Control, having a preliminary low to moderate safety significance, was self-revealed on November 6, 2014, following the discovery that one of the Unit 3 electromatic relief valves (ERVs) would not have performed its intended safety function. Increased vibrations experienced while operating at extended power uprate (EPU) power levels resulted in the degradation of multiple ERV actuator components which rendered the valve inoperable. The inspectors determined that the licensee fully implemented the Unit 3 EPU following a main generator rewind in November 2010,

but failed to verify that the ERV actuator design was suitable for operation at the continuously increased vibration levels experienced at EPU power levels. This finding does not represent an immediate safety concern in that the licensee has replaced all four Unit 3 ERV actuators with a hardened design successfully utilized at the Quad Cities Generating Station, which also experienced significant steam line vibrations post EPU.

The inspectors determined that the licensee's failure to ensure the continued operability of the Unit 3 ERVs following the establishment of EPU plant operating conditions was a performance deficiency warranting a significance evaluation. The inspectors determined that the finding was more than minor in accordance with IMC 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Screening," dated September 7, 2012, because it was associated with the Mitigating Systems Cornerstone attributes of design control and equipment performance and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. A Significance and Enforcement Review Panel (SERP), using IMC 0609, Appendix A, "Significance Determination Process For Findings At-Power," dated June 19, 2012, preliminarily determined the finding to be of low to moderate safety significance (White). The inspectors determined that this finding has a cross-cutting aspect of operating experience in the area of Problem Identification and Resolution, since it involves the failure to implement relevant internal and external operating experience in a timely manner. [P.5]

Inspection Report# : [2014005](#) (pdf)

Inspection Report# : [2015008](#) (pdf)

Inspection Report# : [2015011](#) (pdf)

Barrier Integrity

Significance: **G** Dec 31, 2014

Identified By: Self-Revealing

Item Type: NCV Non-Cited Violation

Failure to Maintain Configuration Control in the Unit 3 Containment Pressure Suppression System

A finding of very low safety significance and associated non-cited violation of Technical Specification (TS) 5.4.1, "Procedures," was self-revealed on November 19, 2014, for the licensee's failure to maintain configuration control in the Unit 3 containment pressure suppression system. Specifically, the licensee failed to maintain the instrument air stop valve to the actuator for Unit 3 torus vent 3-1601-60 open with the reactor in the Start-up and Run Mode following refueling outage D3R23.

The inspectors determined that the licensee's failure to maintain configuration control of the Unit 3 containment pressure suppression system was contrary to procedures for the emergency depressurization of containment as well as maintaining TS required atmospheric conditions inside the primary containment with the reactor in Mode 1 and was a performance deficiency. The inspectors determined that the finding was more than minor because it was associated with the barrier integrity cornerstone attribute of configuration control in how containment design parameters are maintained while affecting the cornerstone objective of providing reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. The inspectors determined that the finding was of very low safety significance based on answering "No" to all of the Barrier Integrity screening questions in IMC 0609, Appendix A, "The Significance Determination Process for Findings At-Power," Exhibit 3. The finding has a cross-cutting aspect of conservative bias in the area of Human Performance because the licensee did not implement appropriate robust barriers to prevent bumping of the 3-1601-60SV in response to corrective action 511878-02. Specifically, the licensee previously evaluated 3-1601-60SV and non-conservatively determined that this particular valve did not require a seal to prevent inadvertent operation. [H.14]

Inspection Report# : [2014005](#) (pdf)

Emergency Preparedness

Occupational Radiation Safety

Significance:  Mar 31, 2015

Identified By: Self-Revealing

Item Type: NCV Non-Cited Violation

10 CFR 20.1701; Failure to Implement Effective Radiological Engineering Controls

A finding of very-low safety significance, and an associated NCV of 10 CFR 20.1701 was self-revealed during work activities associated with the failure to effectively implement planned radiological engineering controls during reactor head reassembly that resulted in personal contaminations and unintended radiological intakes to workers. On November 14, 2014, during the cleaning of the reactor head studs, several workers on the refuel floor were contaminated, and received unplanned and unintended intakes of radioactive material. Corrective actions included revising applicable procedures to improve the engineering and contamination controls during reactor head reassembly.

The inspectors determined that that the finding was more than minor in accordance with IMC 0612, in that the finding impacted the program and process attribute of the Occupational Radiation Safety Cornerstone, and adversely affected the cornerstone objective of ensuring adequate protection of worker health and safety from exposure to radiation. Specifically, the failure to implement effective radiological engineering and contamination controls during the cleaning of the contaminated reactor head studs resulted in personal contaminations and intakes to several workers. The inspectors concluded that the radiological hazards had the potential to result in higher exposures to the individuals had the circumstances been slightly altered. The finding was determined to be of very-low safety significance in accordance with IMC 0609, Appendix C, "Occupational Radiation Safety Significance Determination Process," because it was not an as low as reasonably-achievable planning issue, there was neither overexposure nor substantial

potential for an overexposure, and the licensee's ability to assess dose was not compromised. The inspectors concluded that the cause of the issue involved a cross-cutting component in the human performance in that the licensee's management did not ensure that effective radiological engineering controls was either managed or coordinated commensurate to the work activities. [H.5]

Inspection Report# : [2015001](#) (*pdf*)

Public Radiation Safety

Security

Although the Security Cornerstone is included in the Reactor Oversight Process assessment program, the Commission has decided that specific information related to findings and performance indicators pertaining to the Security Cornerstone will not be publicly available to ensure that security information is not provided to a possible adversary. Other than the fact that a finding or performance indicator is Green or Greater-Than-Green, security related information will not be displayed on the public web page. Therefore, the [cover letters](#) to security inspection reports may be viewed.

Miscellaneous

Last modified : December 15, 2015